Claims

[c1] 1. A multiple channel array coil for magnetic resonance imaging, comprising:
an anterior section; and
a posterior section;
said anterior and posterior sections displaced from one another about a first direction, and both of said anterior and posterior sections further comprising a left portion and a right portion displaced from one another about a second direction, with each of said left and right portions further comprising a superior coil element and an inferior coil element displaced from one another about a third direction.

[c2] 2. The array coil of claim 1, wherein each of said superior coil elements are arranged with an associated one of said inferior coil elements in an overlapping configuration.

[c3] 3. The array coil of claim 2, wherein each of said left and right portions are isolated from one another by transformer decoupling therebetween.

[c4] 4. The array coil of claim 3, wherein said anterior section is isolated from said posterior section by preamplifier decoupling.

[c5] 5. The array coil of claim 1, wherein said left and right portions of said anterior section are symmetrically aligned over said left and right portions of said posterior section.

[c6] 6. A multiple channel cardiac array coil for magnetic resonance imaging, comprising:
an anterior section;
a posterior section; and
said anterior and posterior sections symmetrically arranged and displaced from one another about a first direction, both of said anterior and posterior sections further comprising a left portion and a right portion symmetrically arranged and displaced from one another about a second direction, with each of said left and right portions further comprising a superior coil element and an inferior coil element displaced from one another about a third direction;

wherein each of said superior and inferior coil elements are generally rectangular in shape and are formed from a generally flat, conductive material.

[c7] 7. The cardiac array coil of claim 6, wherein each of said superior coil elements are arranged with an associated one of said inferior coil elements in an overlapping configuration.

[c8] 8. The cardiac array coil of claim 7, wherein each of said left and right portions are isolated from one another by transformer decoupling therebetween.

[c9] 9. The cardiac array coil of claim 8, wherein said anterior section is isolated from said posterior section by preamplifier decoupling.

[c10] 10. The cardiac array coil of claim 6, wherein said left and right portions of said anterior section are symmetrically aligned over said left and right portions of said posterior section.

[c11] 11. A magnetic resonance imaging (MRI) system, comprising:
a computer;
a magnet assembly for generating a polarizing magnetic field;
a gradient coil assembly for applying gradient waveforms to said polarizing magnetic field along selected gradient axes; and
a radio frequency (RF) transceiver system for applying RF energy to excite nuclear spins of an object to be imaged, and for thereafter detecting signals generated by excited nuclei of said object to be imaged, said RF transceiver system further comprising:
a multiple channel cardiac array coil having an anterior section and a posterior section;
said anterior and posterior sections displaced from one another about a first direction, and both of said anterior and posterior sections further comprising a left portion and a right portion displaced from one another about a second direction, with each of said left and right portions further comprising a superior coil element and an inferior coil element displaced from one another about a third direction;
wherein signals detected by said multiple channel array coil are processed by

said computer to produce MR images of said object to be imaged.

[c12] 12. The MRI system of claim 11, wherein said multiple channel cardiac array coil is configured for sensitivity encoding (SENSE) imaging techniques.

[c13] 13. The MRI system of claim 11, wherein each of said superior coil elements are arranged with an associated one of said inferior coil elements in an overlapping configuration.

[c14] 14. The MRI system of claim 13, wherein each of said left and right portions are isolated from one another by transformer decoupling therebetween.

[c15] 15. The MRI system of claim 14, wherein said anterior section is isolated from said posterior section by preamplifier decoupling.

[c16] 16. The MRI system of claim 11, wherein said left and right portions of said anterior section are symmetrically aligned over said left and right portions of said posterior section.

[c17] 17. A method for configuring a multiple channel array coil suitable for use in sensitivity encoding for magnetic resonance imaging (MRI), the method comprising:
arranging a first set of individual coil elements into an anterior section; and
arranging a second set of individual coil elements into a posterior section;
wherein said anterior and posterior sections are displaced from one another about a first direction, and wherein both of said anterior and posterior sections are further arranged into a left portion and a right portion that are displaced from one another about a second direction, with each of said left and right portions further being arranged from a superior coil element and an inferior coil element displaced from one another about a third direction.

[c18] 18. The method of claim 17, further comprising arranging each of said superior coil elements with an associated one of said inferior coil elements in an overlapping configuration.

[c19] 19. The method of claim 18, further comprising isolating each of said left and right portions from one another by transformer decoupling.

[c20] 20. The method of claim 19, further comprising isolating said anterior section from said posterior section by preamplifier decoupling.

[c21] 21. The method of claim 17, further comprising symmetrically aligning said left and right portions of said anterior section over said left and right portions of said posterior section.

[c22] 22. A method for implementing sensitivity encoding for magnetic resonance imaging (MRI), the method comprising:
generating a polarizing magnetic field;
applying gradient waveforms to said polarizing magnetic field along selected gradient axes; and
applying RF energy generated by an RF transceiver system to excite nuclear spins of an object to be imaged, and thereafter detecting signals generated by excited nuclei of said object to be imaged, wherein said RF transceiver system further includes:
an anterior section; and
a posterior section;
said anterior and posterior sections displaced from one another about a first direction, and both of said anterior and posterior sections further comprising a left portion and a right portion displaced from one another about a second direction, with each of said left and right portions further comprising a superior coil element and an inferior coil element displaced from one another about a third direction.

[c23] 23. The method of claim 22, wherein each of said superior coil elements are arranged with an associated one of said inferior coil elements in an overlapping configuration.

[c24] 24. The method of claim 23, wherein each of said left and right portions are isolated from one another by transformer decoupling therebetween.

[c25] 25. The method of claim 23, wherein said anterior section is isolated from said posterior section by preamplifier decoupling.

[c26] 26. The method of claim 22, wherein said left and right portions of said anterior

section are symmetrically aligned over said left and right portions of said posterior section.